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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/755,008      | 01/05/2001  | Jeffrey D. Birdsley  | AMDA.469PA          | 4595             |

7590 04/27/2004  
Crawford PLLC  
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St. Paul, MN 55120

EXAMINER

WILLE, DOUGLAS A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2814

DATE MAILED: 04/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/755,008 | <b>Applicant(s)</b><br>BIRDSLEY ET AL. |  |
|                              | <b>Examiner</b><br>Douglas A Wille   | <b>Art Unit</b><br>2814                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 23 February 2004.

2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-20 is/are pending in the application.

    4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-20 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

|   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____.<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input type="checkbox"/> Other: _____. |
|---|--|

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of claims 13 – 20 with traverse is acknowledged but since the restriction is proper it is made final.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 12 – 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claims 12 and 13 refer to modulation being adapted to inhibit optical beam intrusion upon the integrated circuit. This is not understood. Does this mean that modulation prevents the optical beam from reaching the circuit or does this mean that the optical beam is of sufficiently short duration that the optical signal is not detected by the circuit. If the former, the device would not be functional. If the latter, it is noted that carriers created by optical means will still be available for electrical interaction with the circuit. The specification provides no clarification on this point. Correction or explanation is required.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paniccia et al. in view of Kikuchi.

7. With respect to claim 12, Paniccia et al. show (see Figure 4 and column 4 et seq.) a means for directing a mode locked laser beam on to a substrate 405 using a lens 411 and a means for obtaining a reflected optical signal from the substrate but do not specify that the substrate is SOI. Kikuchi shows a means for evaluating an SOI substrate using optical techniques (see cover Figure and column 2, line 51 et seq.). Since Kikuchi shows that optical techniques can be used to evaluate an SOI substrate, it would be obvious to use the Paniccia et al. technique for SOI substrates since both the SOI and the usual substrates contain circuits.

8. With respect to claim 13, Paniccia et al. show (see Figure 4 and column 4 et seq.) an optical beam arrangement 407, 409, 411 for directing a mode locked laser beam on to a substrate 405 and a detection arrangement 411, 409, 417 to detect a reflected optical signal from the substrate but do not specify that the substrate is SOI. Kikuchi shows a means for evaluating an SOI substrate using optical techniques (see cover Figure and column 2, line 51 et seq.). Since Kikuchi shows that optical techniques can be used to evaluate and SOI substrate, it would be obvious to use the Paniccia et al. technique for SOI substrates since both the SOI and the usual substrates contain circuits.

9. With respect to claim 14, the laser 407 is a mode locked laser operating at 1.06 microns (column 5, line 42).

10. With respect to claim 15, mode locked laser generally produce pulses in the picosecond range but since criticality has not been established it would be obvious to use any pulse length needed for circuit analysis as a matter of design choice.

Art Unit: 2814

11. With respect to claim 16, Paniccia et al. show the use of a bias applied to the device (column 6, line 38) which inherently includes a testing device to operate the circuit element.

12. With respect to claims 17 and 18, it would be obvious to use a computer to process the detected signals and to provide a visual output.

13. With respect to claim 19 the use of a monitor or a printer are obvious visual output devices.

14. With respect to claim 20, it would be obvious to use any standard analysis technique on the output.

***Response to Arguments***

15. Applicant's arguments filed 2/23/04 have been fully considered but they are not persuasive.

16. Applicant states, with respect to the 112 rejection, states that the modulation inhibits excessive intrusion but both the claims and the specification state that intrusion is inhibited. Thus the rejection still stands.

17. Applicant states that Paniccia et al. require an unmodulated beam and states that the mode locking provides a fixed frequency but in fact, the Panaccia et al. laser by virtue of being mode locked produces a stream of short pulses which is an inherent characteristic of a mode locked laser. Applicant's attention is directed to column 7, line 49 of Paniccia et al.

18. Applicant states that the Paniccia et al. beam would destroy the device. Why is that? I see no such action as being inherent in the process described.

***Conclusion***

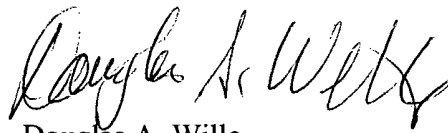
19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A Wille whose telephone number is (571) 272-1721. The examiner can normally be reached on M-F (6:15-2:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Douglas A. Wille  
Primary Examiner